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ABRUPT ONSET IN TYPHOID FEVER.

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THOUGH it must be recognized, as Liebermeister taught, that there is no single symptom which may be regarded as pathognomonic of typhoid fever, the diagnosis of this disease rarely causes great difficulty after the expiration of the first several days. At the onset, however, it is extremely difficult to determine positively whether the attack is one of typhoid fever or some other infectious or inflammatory disease. It is universally taught and is a fact that the invasion in the majority of cases is insidious; but we have met with so many instances of abrupt onset, in the last few years, that it has seemed wise to present the notes of a few of these and to call attention to this mode of invasion. In several cases we have permitted ourselves to be too sanguine regarding the nature of the case under observation, and have for a time been misled. Authorities for the most part, though stating that the onset is usually insidious, do not specifically call attention to the nature of the invasion in the exceptional cases. Only Moore (*Text-Book of the Eruptive and Continuous Fevers*, 1892) states:

"Of late years the classical insidious onset of enteric fever has in many instances given place to a more abrupt and vehement advance, characterized by decided rigors, violent headache and rapid rise of temperature. This at least has been our experience in Dublin during and since the epidemic of 1889. In a word, the whole course of the disease has become more typhus-like than formerly."

While we have met with few cases in which the severity of the onset was such as would justify the suspicion of typhus fever, in general Moore's experience coincides exactly with our own. We now present a few histories of cases met with in late years which will serve to illustrate the nature of the cases we have in mind.

CASE I.—Miss B. A., aged 18, spent the summer at Atlantic City. She had not been as strong as usual, and on November 15th had a sharp attack of what seemed gastro-enteric catarrh. There was moderate fever, occasional vomiting, soon allayed, diarrhea which proved quite severe, and obstinate and considerable abdominal pain. Under strict rest, rigid diet, and simple remedies the symptoms disappeared, but she remained so weak and pale as to suggest an attack of influenza with gastro-intestinal symptoms. By December 3d she had improved considerably and went to an afternoon entertainment; the next morning she had a slight chill followed by intense headache, fever, which rapidly rose and the following day reached 104.2° and slight cough, but with no symptoms of intestinal irritation. On December 7th the temperature reached 105.2°. There was enlargement of the spleen and intense Widal's reaction, slight albuminuria and a marked Ehrlich reaction. Eruption did not appear until December 9th, after which it became abundant and widespread. The headache continued violent for several days; the bowels were constipated until the 11th day, when slight and easily controlled looseness developed. Delirium was unusually slight. The temperature reached 105° several times, but on the whole was easily controlled by repeated cool sponging. Altogether the course of the case, after the unusually abrupt onset, with very early albuminuria and Widal's reaction, presented no special peculiarity or gravity.

CASE II.—Mrs. B. B., aged 24, the mother of two children, the youngest 8 months old, has been under our observation for some years past. Before her marriage she had pronounced chlorosis, the hemoglobin at one time falling to 15 per cent. (Fleischl). Since her marriage she has been more vigorous, but still remains chlorotic. Of late she has been as well as usual, though weak. After an exertion on a Saturday afternoon, when she walked very quickly or ran to her sister's house at some distance, carrying her child in her arms, she was almost prostrated and soon was seized with a chill, which was quite severe and was followed by violent nausea and vomiting. Everything was regurgitated from her stomach and she could not even retain small sips of water. Her temperature rose to 104° or 105°. (We did not see her at this time.) During the night diarrhea began and continued for the next

three days without interruption, despite the administration of powerful diarrhea-mixtures, most of which, however, were promptly regurgitated. When we first saw her, four days after the onset, there was marked tenderness in the epigastrium, without any distention of the abdomen. The tongue was furred and the patient complained of headache and pain in the limbs. Subsequently the case proved a typical instance of mild typhoid fever, though the duration has been exceptionally long. (She still has considerable fever at the present time, six weeks after the beginning.) For the first three weeks the appetite was completely absent, but during the last three weeks she has been exceedingly hungry.

Case III. — J. S., aged 30 years, was suddenly seized with chills followed by rapid elevation of temperature to 103° or 104°, violent general pains, vomiting, and purging. His strength declined rapidly and when admitted to the hospital he was prostrated. The abdomen was swollen and tympanitic. The spleen seemed enlarged, though it could not be felt; the temperature continued high. The diarrhea could not be checked, though it was not excessive. Examination of the lungs showed only a slight bronchitis; the heart-sounds were sharp, but the heart was not enlarged and there were no murmurs. The patient's strength was quickly exhausted and he died five days after the commencement of the disease. His friends were closely questioned and they asserted that he had been absolutely well until the day of onset. The autopsy showed enlargement of Peyer's patches, with beginning ulceration in a few. The mesenteric glands were enlarged and on section grayish pink and rather edematous. The spleen was decidedly enlarged, soft, and easily friable. Bacteriologic examination discovered typhoid bacilli.

Case IV.—J. A., aged 27, an employé in the Post-office, summoned one of the writers to his home, where he was found abed. He stated that a day or two previously he had taken cold after a distinct exposure. His face was flushed, his eyes considerably injected, the lids swollen, and he complained of sore throat. The tonsils were enlarged and slight whiteness of the follicles was observed. There was some cough and scattered bronchial râles. The temperature was 100° and the pulse 96. The appetite was impaired, though he still had desire for food. The following day the symptoms were much the same. He had slept but little during the night, complaining of aching in his limbs, with some occipital headache. An antipyretic mixture had not affected the temperature. There was now considerable tenderness in the epigastrium. During the next few days scarcely any change was observed. The temperature remained persistently elevated to about the same point. The appearance of the patient was that of one suffering with an

acute sthenic disease; his eyes were bright, his facial expression alert. Gradually, however, he assumed a different appearance and afterwards became dull and apathetic. He was positive that he had been absolutely well up to the time of his exposure and acute coryza. The further history of the case was that of a typical and mild typhoid fever.

CASE V.—L. H., a young man aged 24, left Denver for his home in Philadelphia. During the first night of his journey he felt a draft and the next day was suffering with a coryza and sore throat. On his arrival in Philadelphia one of the writers was called to see him. He then had a temperature of 101.4°, a pulse of 80, and complained of soreness of throat and coryza, with slight cough. The tonsils were red and somewhat enlarged. The conjunctivæ were deeply injected and the eyelids swollen. The mucous membrane of his nose was swollen and breathing through the nose was difficult. There were scattered bronchial râles and cough. The patient was ordered to bed and the next day was found in the same condition. At this time he was more carefully examined and it was learned that he had been perfectly well until the exposure and cold developed. It was also found that he had moderate tenderness in the epigastrium. His bowels were constipated; there was no enlargement of the spleen. During the next several days his condition was unchanged. The fever continued at about the same height. The face, eyes, and mucous membranes remained suffused. After one week's duration the continuance of the condition, the complete loss of appetite, the slowness of his pulse and beginning enlargement of the spleen, indicated probable typhoid fever, and within a few days several questionable spots were detected and Widal's test gave a positive reaction. After this the disease progressed regularly as a typical instance of typhoid fever.

CASE VI.—C. W., aged 25, a medical student, began to feel badly on Friday afternoon. He had had a little headache for several days, but was not conscious of having had fever. On Friday, the day of apparent onset, the temperature suddenly rose, with chilliness, but no distinct chill. The thermometer registered between 103° and 104° and he complained of great soreness of the throat, of universal pains, and had some cough and bronchial râles. Three days later he was admitted to the hospital and during that day his temperature varied from 103° to 105.4°. The pulse was slow, registering 104 at the maximum and 84 at the minimum. Subsequently the history was that of an ordinary typhoid fever, with marked tonsillitis, some pharyngeal ulceration and annoying bronchitis among the pronounced symptoms of the first two weeks.

CASE VII.—Miss D., aged 28, a trained nurse, was attending a case, when on the 12th of February she took a bad cold.

That evening her temperature rose to 101° and she felt very badly. She abandoned the case at once and went home. The next day her temperature reached 104° and she complained of much soreness of throat, coryza, and cough. The physician first summoned believed that she was suffering with influenza. The temperature continued, however, at unusual height and was unaffected by antipyretics. She had never presented bleeding of the nose and was constipated. There was some tenderness over the epigastrium. Her appetite was completely absent from the first. Subsequently the case presented features of an ordinary case of typhoid fever.

The foregoing histories serve to show that of the instances marked by abrupt onset there are two particular types: One in which the preliminary symptoms are gastro-intestinal in character, the other marked by manifest indications of acute infection, with inflammatory lesions of the throat, nose and bronchial tubes. The former we may designate a gastro-intestinal form, the latter catarrhal.

The Gastro-Intestinal Form.—In this variety we have found among the conspicuous symptoms vomiting epigastric pain, purgation, and high fever. The vomiting has been in most cases the primary symptom, unless there were vague discomfort preceding it and of such slight moment that it had almost escaped the attention of the patient. The stomach becomes completely unretentive, and even when no attempt has been made to take food, retching continues and small quantities of thin mucous liquid are regurgitated. At the same time the patient complains of more or less marked tenderness in the epigastrium. There is not usually pain, except on pressure, and the tenderness is rather sharply localized to the stomach. Soon after the onset of vomiting, or in other cases some hours later, diarrhea sets in and takes the form of more or less pronounced serous purging. The two symptoms, vomiting and purging, continue for a day or two or several days and reduce the patient's vitality greatly. During the same time the

temperature rises rapidly and reaches an elevation of 103° or 105°, not rarely the latter. After the preliminary gastro-intestinal symptoms have somewhat subsided, the temperature declines and the case progresses without necessarily presenting marked or peculiar features.

In one of the instances (Case II) here recorded we were surprised at the unusual mildness of the subsequent course of the disease, when the violence of the onset and the previous unsatisfactory condition of the patient's health were taken into consideration. In several instances a complete remission of the symptoms occurred after the preliminary attack, suggesting an atypical and abortive attack of great violence, followed by a regular and typical attack.

Catarrhal Form.—Cases of this description begin very much as do some forms of influenza, and we have been greatly puzzled during the first week to reach a satisfactory diagnosis. As a rule there is chilliness or a distinct chill at the beginning and after some definite exposure; then follow redness and swelling of the mucous membranes of the pharynx and tonsils, pain on pressure beneath the angle of the jaw and on swallowing, more or less coryza, swelling and injection of the conjunctivæ, and bronchitis. The temperature rises rather abruptly and may become as high as 104°, though more frequently it falls short of this. The patients complain of pain in head and in the limbs, backache, and wretchedness. The most annoying symptom, perhaps, is the "bursting headache." The pulse rises in frequency, but it is not in keeping with the temperature. The patient loses his appetite almost completely, although we have met with exceptions to this rule. The tongue is slightly furred, and there is nearly always localized tenderness in the epigastrium. The patient, as a rule, states that he had been absolutely well until the initial chill, but in some cases there is a

history of a slight indisposition for several days, or even weeks. The catarrhal symptoms continue for some time after the symptoms of typhoid have developed, and the further course of the disease shows no peculiar characteristics.

It will be recognized that both of these types of onset differ greatly from the classic invasion, and the difficulty of diagnosis must be apparent. If, as Leube states, the temperature has been observed from the beginning, and is regularly ascending or continuous, the pulse is increased, but not in proportion to the temperature, the spleen is enlarged within the first week, and roseolous spots appear in the second week, the diagnosis can be made without reservation. But, unfortunately, we are always called upon to make a diagnosis before a week has elapsed, and will not be ourselves satisfied at so long a delay in reaching a conclusion. It must, of course, be admitted that many cases present themselves in which it would be unwarranted to make a positive diagnosis before the expiration of a week, even when the symptoms have been regular in development. In such cases, we can only say that the clinical course is like that of typhoid fever, though the further development of the disease may show that the nature of the disease is something quite different. It would be more hazardous, however, to assert that the disease is certainly *not* typhoid, when the evolution of the symptoms is not gradual and progressive, and it is our present purpose to call attention to the fact that such atypical onset is frequent. There is, naturally, a strong temptation to exclude typhoid fever absolutely, when the onset is abrupt or violent. It has been so long and so universally taught that the invasion of the disease is insidious, and authors have so regularly neglected to call attention to the character of onset in the exceptional cases, when admitting that insidious onset

is usual only, and not invariable, that we feel it necessary to call attention with emphasis to the kind of cases we are reporting. It may be well to allude particularly to some of the symptoms that may aid in reaching a diagnosis.

The temperature in the cases marked by abrupt onsets is, of course, an unsatisfactory guide. It rises with as great a suddenness as does that in influenza, tonsillitis, typhus fever, and other infections, and may reach the point of hyperpyrexia in a few hours. It furnishes no ground for diagnosis in these cases, and, in passing, we may remark that the gradual ascent of temperature, so often described as characteristic of typhoid fever, is very frequently wanting in typical cases.

The pulse is a far more certain indication. In typical cases it increases as the temperature rises, but not with equal pace. Very often the rate is below 100 or 90 during the first two weeks, though the temperature reaches 103° or 104°. In atypical cases the pulse may be proportionately rapid from the first, but this has been quite unusual in our experience, excepting in the instances marked by pronounced nausea, vomiting, and diarrhea, or when recognized complications have contributed to accelerate the pulse. Two striking instances have been recently under our care in which the early rapidity of the pulse was of assistance in excluding typhoid fever. Each of these cases began abruptly, with symptoms quite like those narrated under the heading "Catarrhal Form." The fever remained at from 102° to 103.5° in spite of antypyretic remedies, the general appearance of the patient was highly suggestive, the appetite was wholly wanting for several days, the spleen was certainly enlarged in one and doubtfully so in the other; in one there was a history of ill health for two or three weeks prior to the onset. In each, however, the pulse was quite rapid; disproportionately so, in fact. In one

the diagnosis was further complicated by the fact that two bacteriologists reported that the blood caused agglutination of typhoid bacilli in cultures, though neither observer found the motility of the bacilli destroyed. In neither case was there special epigastric tenderness. The further history of these cases excluded typhoid fever.

Loss of appetite is a symptom of some importance. It has seemed to us especially so in the case of children. It is true that anorexia is a common symptom in many diseases, but there are few conditions in which it is so pronounced and unremitting as in typhoid fever. In the cases marked by sudden onset the anorexia continues without change, after the pronounced symptoms of onset have ameliorated. In the case of other diseases beginning with like symptoms, the appetite, as a rule, improves as soon as the general symptoms subside.

Epigastric tenderness is a frequent symptom in the early days of typhoid fever, and one that is commonly ignored in descriptions of the disease. We mention it here particularly because we have seen cases in which this symptom was marked and had been regarded as important in excluding typhoid fever.

Splenic enlargement, if detected early in a case, has always considerable weight in leading to a diagnosis. Its frequent occurrence in other infections, however, deprives it of great value, and its absence (to physical examination) is very common.

The eruption of typhoid fever is an unreliable indication. A diagnosis resting mainly upon this is an unsound structure. The spots are frequently atypical, and not rarely similar eruptions occur in other diseases. Typical roseolæ are, of course, of some value.

The examination of the blood by the ordinary methods may occasionally aid the diagnostician. Pronounced deficiency in the number of leukocytes (leuko-

penia) would aid somewhat, though it would not exclude influenza. The examination of the blood with regard to its action on typhoid cultures (Widal's method) is of the greatest importance, but is unreliable at the onset and for several days thereafter. In doubtful cases persisting for some days this test usually settles the diagnosis.

Examination of the stools and urine for bacilli may at times be useful in the later stages of the disease, but has not been shown to possess particular merit in the beginning.

Finally, we would repeat that typhoid fever cannot be excluded in cases of sudden fever, marked by decided symptoms of gastro-intestinal or catarrhal type; and that a disproportionate slowness of the pulse, pronounced and persistent anorexia, epigastric tenderness, and splenic enlargement are symptoms of importance as indicating possible or probable typhoid fever.